Virginia Wildlife

OCTOBER 1966

VOLUME XXVII / NUMBER 10

20 CENTS

Virginia Wildlife

Dedicated to the Conservation of Virginia's Wildlife and Related Natural Resources and to the Betterment of Outdoor Recreation in Virginia

CONSERVATION COMMUNICATIONS AWARD—1965

Presented to *Virginia Wildlife* by the VIRGINIA WILDLIFE FEDERATION in cooperation with the NATIONAL WILDLIFE FEDERATION and the SEARS-ROEBUCK FOUNDATION

Published by VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES
Richmond, Virginia 23213

COMMONWEALTH OF VIRGINIA

MILLS E. GODWIN, JR., Governor

Commission of Game and Inland Fisheries

COMMISSIONERS

J. Cargill Johnson, *Chairman* . . Newport News
J. C. Aaron, *Vice-Chairman* . . . . Martinsville
H. G. Bauserman, Jr. . . . . Arlington
Richard F. Beirne, III . . . . . Covington
Custis L. Coleman, M.D. . . . . Richmond
Edward E. Edgar . . . . . Norfolk
A. Ree Ellis . . . . . Waynesboro
R. G. Gunter . . . . . Abingdon
G. Richard Thompson . . . . . Marshall
E. Floyd Yates . . . . . Powhatan

ADMINISTRATIVE OFFICERS

Chester F. Phelps, *Executive Director*
Richard H. Cross, Jr. . . . *Chief, Game Division*
Robert G. Martin . . . . *Chief, Fish Division*
Lillian B. Layne . . . . *Chief, Fiscal Division*
James F. McInteer, Jr. . *Chief, Education Division*
John H. McLaughlin . *Chief, Law Enforcement Div.*

PUBLICATION OFFICE: Commission of Game and Inland Fisheries, 7 N. Second St., Richmond, Virginia

James F. McInteer, Jr. . . . . *Editor*
Ann E. Pilcher . . . . . *Editorial Assistant*
Leon G. Kesteloo . . . . . *Photographer*
Harry L. Gillam . . . . . *Circulation*

OCTOBER

Volume XXVII/No. 10

IN THIS ISSUE **PAGE**

Guest Editorial: Too Many Keys 3
Letters 3
The Bear Who Came to Dinner 4
New Life for Old Ponds 7
Honker—Game Bird of the Future? (Part II) 8
Here Come the Ducks 10
Welcome to Hawfield 12
Conservationgram 13
This Is Hawfield 14
Bowhunters Beware 16
Voyageurs of the Flyways 18
Bird of the Month: Double-crested Cormorant 23
The Drumming Log 24
Youth Afield 25
On the Waterfront 26
1965-66 Big Game Trophy Contest announcement 27
Pictorial: Migration 28

COVER: Two fishermen meet. Although insects, honey, acorns, berries, rodents and carrion make up much of his diet, the black bear seldom passes up a chance to do a little fishing, and his dexterity in scooping an unwary sucker or trout from a pool is surprising. Another expert, the kingfisher, waits his turn, amused, perhaps, by the bear's technique. Our artist: Charles L. Ripper of Huntington, West Viriginia.

SUBSCRIPTIONS: One year, $1.50; three years, $3.50. Give check or money order, made payable to the Treasurer of Virginia, to local game commission employee or send to Commission of Game and Inland Fisheries, P. O. Box 1642, Richmond, Virginia 23213.

Virginia Wildlife is published monthly at Richmond, Virginia, by the Commission of Game and Inland Fisheries, 7 North Second Street. All magazine subscriptions, change of address notices, and inquiries should be sent to Box 1642, Richmond, Va. 23213. The editorial office gratefully receives for publication news items, articles, photographs, and sketches of good quality which deal with Virginia's soils, water, forests, and wildlife. The Commission assumes no responsibility for unsolicited manuscripts and illustrative material. Credit is given on material published. Permission to reprint text material is granted provided credit is given the Virginia Commission of Game and Inland Fisheries and Virginia Wildlife. Clearances must be made with photographers or artists to reproduce illustrations.

Second-class postage paid at Richmond, Va.

GUEST EDITORIAL

Too Many Keys

"AS the snowfall of winter begins to whiten a man's hair" (wrote the editor), "and the feet that once danced their way are satisfied to plod, he is supposed to find repayment for his losses in the weight of the keychain that burdens his pocket.

"Year by year it grows a little; car keys, safety deposit box, house or houses, office or offices, warehouses, all with locks and brass keys to fit them. Do some love the music of their keys, poured through their fingers? For us, we must wonder who is the prisoner after all."

The writer was Bob Wilson, editor of a small weekly newspaper, but he voiced a thought that may have begun with Ecclesiastes.

"Is it a happy thought" (asked the editor) "to know that there are more buildings, more houses, more acres of land that you carry the power to lock people out of? When it rains, does one begin to scowl at the sky, thinking of his many exposed roofs? Do the Lord's winds, that once spoke to a young man of far places, of adventure and the open road, fret and worry one now when there are doors and windows and roofs to think of?

"As little children run laughing in the snow, what do they mean to the man burdened with too many keys? Dangerous urchins who may at any moment hurl a snowball through an expensive pane of glass!

"Are schools and fine roads a joy, or do they make an old man grumble as he rattles his keys and reflects on the taxes he pays?

"There is an evil charm about a mass of keys, that fends off the arrows of love and freezes the melting look of compassion. Whom are we locking out with our keys? Are they perhaps those who learned to covet because they have lived surrounded by locked doors? Do they bear in their heart a secret will to smash and destroy, because they have not just a little to cherish of their own?

"The keys wear out keychains, and they wear out pockets. They would sow themselves over the earth and be gone if they were not bound together with thongs of greed, looped about the heart. How much, really, do we want, and why do we want it? Enough to live without working? Enough to leave our children? What is enough? The keys grow in weight, and the thongs cut into the heart."

Take time out from the getting and spending to enjoy God's world of the outdoors. And if you own a bit of that outdoors—and we are all merely stewards, not owners—share a bit of it with those who do not.

Editorial by James F. Keefe, reprinted courtesy of the Missouri Department of Conservation from its August 1966 issue of *The Conservationist.*

LETTERS

Duck Hawks Gone From The Blue Ridge

IN a recent conversation with Dr. J. J. Murray, Lexington, Virginia, I learned that no productive eyries of the duck hawk have been found in Virginia for at least two years. According to Dr. Murray, duck hawks previously nested in the Blue Ridge Mountains near Luray.

It is certainly unfortunate that this regal falcon so superhly characterized by G. H. Thayer (1904) as—

> "perhaps, the most highly specialized and superlatively well-developed flying organism on our planet today, combining in a marvelous degree the highest powers of speed and aerial adroitness with massive, warlike strength. A powerful, wild, majestic, independent bird, living on the choicest of clean, carnel food, plucked fresh from the air or the surface of the waters, rearing its young in the nooks of dangerous mountain cliffs, claiming all the atmospheres as its domain, and fearing neither beast that walks nor bird that flies, it is the very embodiment of noble rapacity and lonely freedom"—

has apparently fallen prey itself to the many subtleties of a man-changed environment.

Please find enclosed a recent photograph of a female duck hawk, which belongs to the Associate Curator of Biology, Rochester Museum of Arts and Sciences, Rochester, N. Y. He retains this bird under a special New York State permit for educational and scientific purposes.

I thought this item might be of interest to the readers of *Virginia Wildlife.*

Dwight R. Chamberlain
Virginia Polytechnic Institute
Blacksburg

THE BEAR WHO CAME TO DINNER

By RONALD SHORTRIDGE
Arlington

IF you haven't yet had a bear wreck your camp, ruin your supper and almost damage your automobile, you may be considered lucky. Fortunate or not, it happened to three of us fellows Labor Day weekend, 1965. We were spending the night in the Rapidan Wildlife Management Area during a three-day hunting and fishing trip.

I hasten to point out that we were not hunting within the management area, nor the adjacent Shenandoah National Park. All of our hunting took place near Banco in Madison County, where squirrel season opened September 1. Hunting season had not opened at the time on the management area and, of course, there is no open hunting season in the park. The reason we were there that particular Sunday evening was that we needed a place to spend the night under the stars, and it was a short distance from Banco where we intended to hunt on Monday morning. Had we known what lay ahead, we would have been wise to cut our trip short and head for home that Sunday afternoon. It was a rare experience that now seems humorous and exciting but was most disturbing at the time.

Wayne Brandenburg of Falls Church and Fred Curry of Alexandria shared the unusual experience with me. All being ardent squirrel hunters, we found the early season in Madison County offered an excellent opportunity since the Labor Day holiday would provide two full days of hunting, while Sunday would give us a chance to do some fishing on the Shenandoah's South Fork.

Fred, having to work that Saturday, could not join us for the first day's hunt. He would join us on the Shenandoah Saturday night.

Brandy and I had to get up early that Saturday morning in order to make the drive to Madison County and be in the woods before dawn. Expectations of the year's first hunt had us bright eyed and bushy-tailed by the time we reached the hickory groves near Banco. Our timing was perfect. By the time we loaded our guns in the darkness and stumbled through the woods, the sky was getting gray. As is customary on all our squirrel hunts, Brandy and I parted company once we were in the woods. We always try to stay at least a few hundred yards apart. We do this not only as a safety precaution. Both of us are loners in the field.

I seated myself on a big log to wait for the squirrels to begin stirring. As I sat there in the gray dawn, I couldn't help thinking of Fred having to miss that day of hunting but as the cold air of the early morning became more apparent, my thoughts changed to Fred snuggled in a good warm bed and I decided he may have been better off after all. I had high hopes, but Brandy and I may have made the trip for nothing if the squirrels were not plentiful.

It was daylight soon enough, and I thought I could hear nuts dropping all around me. I was surprised that there could be so many squirrels that close to me, but I soon realized that it was merely water dropping from the trees. The sound of each little drop hitting the ground seemed magnified a thousand times, and I wondered if I would even hear a squirrel cutting.

A series of shots rang out from the direction of Brandy and I figured he was into a mess of squirrels. I decided to slip quietly to another spot. The big hickories in the distance somehow always look more promising. I had hardly taken a dozen steps when a bushytail began sqwacking. I froze for a few seconds and then spotted limbs shaking in the top of a young hickory about fifty yards away. I moved a few steps at a time, selecting each step with the utmost care. The squirrel wasn't barking now, but was very busy making a breakfast of hickory nuts. I was startled by its size. It was a big one and made a picturesque scene perched high in the

top of the tree, against a blue sky setting. I checked the safety on my ol' 16 gauge, aimed and fired. The big squirrel fell through the limbs, got its footing momentarily on a big limb half way down the tree, fell to the ground and then scampered partially up another tree and fell to the ground just as I was set to shoot him again. I wasted no time getting to him, as I have had more than one squirrel slip off in the brush when I thought it was dead. But this one was done for, and I picked him up and placed him in the game pocket of my coat. I swung my gun up quickly as I heard a noise overhead. A young squirrel, barely half grown, was sitting on a branch directly overhead, cutting a nut as if nothing was amiss. I decided he was too young to kill, but I couldn't help chuckle at the boldness of the little critter. Apparently, the shot had not put much fright in him. He seemed to be enjoying his breakfast, despite all the clamor.

Commission photo by Kesteloo

I seated myself to wait for the squirrels to begin stirring. Water dripping from the trees sounded as if squirrels were cutting nuts all around me.

I strolled down the hill, feeling elated since I had my first squirrel of the season, and stronger because I had let the young squirrel go. I saw one more squirrel that morning, but it saw me before I could get into shotgun range and it scampered into a hole.

I met Brandy at the car about noon and he also had one squirrel. We ate lunch and waited for the next few hours to drag by. We went back into the woods about three o'clock and I managed to get one squirrel about sundown. When Brandy returned to the car, he had three more. He was quite excited and was already planning Monday's hunt. He had seen a dozen squirrels that afternoon, having a very exasperating experience when he found four in a hickory only to have his rifle jam. But he assured me that all four would be in his pocket come Monday morning.

We dressed our squirrels and headed for the South Fork of the Shenandoah near Bentonville. It was a long drive and was completely dark by the time we reached our destination. Fred was to meet us there about midnight. We made a fire and fried a couple of squirrels and Brandy made a pan of squirrel gravy. It was a balmy night there on the Shenandoah and that meal was, without a doubt, one of the most enjoyable either of us had ever experienced.

Fred showed up about midnight and eagerly set into what little squirrel and gravy there was left. There was nothing but bare bones by the time he finished. Fred put up an earnest protest when Brandy and I refused to cook another squirrel for him, but the subject was ended pretty quickly as the conversation turned to bass fishing.

We slept longer than we had intended Sunday morning. The sun was up, and it was a beautiful day. Brandy, who was elected our chief cook and bottle washer, turned out some pancakes for breakfast that were fit for a king, even if a few of them were dropped in the dirt when he didn't quite juggle the skillet fast enough during his display of flapjack tossing.

While we were eating breakfast, a bass was chasing a minnow on the opposite side of the river and making quite a disturbance. Fred was first to finish breakfast and wasted no time getting his spinning rod out. He decided he would get that bass. As he waded waist deep into the cold river, Brandy and I made jokes about Fred's choice of lure but Fred pretended not to hear us and proceeded to stalk the bass. He made a few retrieves and was, much to our dismay, hooked into the bass. The fish put up a scrappy fight while Fred nervously played him. Brandy and I chanted cheers and advice from the river bank. The bass weakened and Fred grabbed him and came thrashing back across the river like a triumphant warrior. His bass measured an inch over the legal size requirement and by the time he started cleaning it Brandy and I were knee deep in the river fishing for his equal. An hour of fishing produced nothing, and we decided to find a more promising fishing hole. We drove all the way to Elkton before mutually deciding to try the water. We parked along the river near Island Ford, where shallow water emptied into a long deep pool. The river was clear and the long hole of water looked like it should be teeming with big bass. But as luck would have it, a few sunfish was all the hole produced despite all our efforts. We fished channels above the pool and found plenty of bass but all were too small to keep. We called it quits and decided to head for Madison County for the next day's squirrel hunt.

We drove to Banco and were presented with the problem of finding a place to camp until we remembered that the Rapidan Wildlife Management Area was just a short distance from Banco. Since the hunting season was not open on the management area, we double checked to make sure that our guns were unloaded and cased. We drove to the Rapidan and found a nice camping spot on the edge of the stream about sundown. It didn't take us long to set up the charcoal grill and get the coffee on. Brandy put the frying pan on the grill and began scrambling the eggs. The aroma of the coffee mixed with the fragrance of the pine and the sound of the rippling Rapidan made a beautiful setting. Our appetites quickly grew to such proportions that we each were wondering if we would all die of malnutrition before supper would be ready.

A movement on the opposite side of the creek caught my eye. A black form was in the brush, and as it moved into the stream I realized it was a bear. Fred had gone to the car to get a lantern and Brandy was a few feet from me, stirring the scrambled eggs. At first, I didn't know if I should "run like a haunt," or quietly warn Brandy and give him a chance to flee with me.

None of us had ever seen a bear in the woods and I had

(Continued on next page)

Brandy brought three more squirrels back to the car that afternoon.

often wondered what my reaction would be. Being as calm as I could I told Brandy we had company. He looked up just in time to see the bear wading across the stream. Though he later claimed he was the perfect example of calm control the expression on his face told the real truth. Neither of us knew exactly what to do. Fred came bouncing down the path unaware of our visitor. Brandy yelled instructions to Fred to turn on the light because there was a bear in camp. Fred came to an abrupt halt, almost dropping the lantern. Despite our dilemma, Brandy and I burst into laughter at Fred's complete turnabout. But he quickly recovered from the shock and lit the lantern.

We stood waiting to see what the bear would do. He reared up on his hind legs and gave us the once over. Then, much to our surprise, he proceeded to come toward us. I suppose we looked like the three stooges faced with an Indian attack, but somehow we managed to remain reasonably calm. There was no way we could defend ourselves if the bear decided to attack. With the slightest indication on his part, I knew we would all make a hasty retreat. I wondered if the other fellows would be as fleet footed as I would have been. As the bear advanced closer, we backed off, keeping our distance. Our new friend strolled right up to our grill and put a big paw on a carton of lard and quickly consumed it. Then he turned to the perking coffee and frying eggs, which we had promptly forgotten. At this point, Brandy reared up like a mother hen protecting her chicks, and began shouting and waving at the bear, hoping to steer him away from our supper. When Brandy went into that act my heart jumped right up in my throat. But the bear wasn't the least bit offended. He just took a mighty blow of the paw and hit the grill. Pieces of the grill went in all directions and the coffee pot and frying pan hit the ground. There went our long-awaited supper, but there wasn't much we could do but watch.

The three of us were so upset over losing our supper, we decided to go to the cars and wait. Maybe our unwanted playmate would lose interest and leave. When we had been standing near my car about five minutes, he came up to join us. He proceeded to waddle directly to Fred's station wagon, reared up on his hind legs and peered into the car. One big paw hit the radio antenna and bent it to the top of the car. Poor ol' Fred bounced up and down with anger. It seemed I could hear the bear's toenails scratching the paint on Fred's car. Then he turned and came toward my car. I wasted no time jumping inside to start the motor, hoping the engine would frighten him away. As I slipped the key into the ignition, the bear put his big black nose against the window. My face was only inches from the bear's nose. When the motor started, the bear took off like a race horse, crashing through the brush.

The bear didn't go far as we could hear him moving around in the brush on the other side of the creek. We cautiously, yet hurriedly gathered our gear. When everything was placed in the cars, we moved down the creek to another camping spot.

The excitement had dwindled our appetites considerably, so we didn't feel too badly about going to bed without supper. We put on a pot of coffee and discussed our experience. Later, as we unrolled our sleeping bags, we discussed the possibility of the bear joining us at our new location. I must admit I was uneasy, lying there beside the creek. But the crisp air made me appreciate the warm sleeping bag, and as I looked at the moon in the dark sky, barely visible through the tops of the pine trees, I hoped the bear had called it a day.

We awakened the next morning an hour before daylight, barely giving us enough time to hastily down a cup of coffee and drive to the woods on the other side of Banco for our Labor Day squirrel hunt. Brandy wasted no time getting to his selected spot where he had seen so many squirrels Saturday afternoon. Fred and I ambled off into the dark woods hoping we would have as much action as we expected Brandy to have. After I had settled against a big tree for awhile I suddenly realized how black the darkness really was. The moon was no longer visible and when I checked my watch I knew daylight was late. Within a short time it began to rain. It was not a hard rain but by the time it was light, I was soaked.

I found Fred, and at his suggestion we drove to a nearby store and got some food. We hoped the rain would stop soon, but by nine o'clock no relief was in sight.

When we got back to the woods, we found Brandy sitting beside the road. He was dripping wet and the rain had kept him from getting a second chance at his four squirrels. It was mutually agreed that morale was very low and a home cooked meal and a warm bed were most desirable.

We had quite an experience and enjoyed it immensely despite our various disappointments. We knew plenty of squirrel hunting and bass fishing opportunities lay ahead, but doubted we ever again would have a similar experience with a bear.

Bears that lose their fear of man and get used to "cleaning up" after campers sometimes do not wait patiently for campers to leave. Such an animal becomes a real nuisance, as the one encountered by the author certainly was, and can be dangerous. Just such a bear (above) had to be trapped by Forest Service and Game Commission personnel on the Elizabeth Furnace recreation area last summer and released in a more remote area. Having had time while in the trap to revise his thinking about associating with people, he lost no time (right photo) in putting distance between himself and his captors.

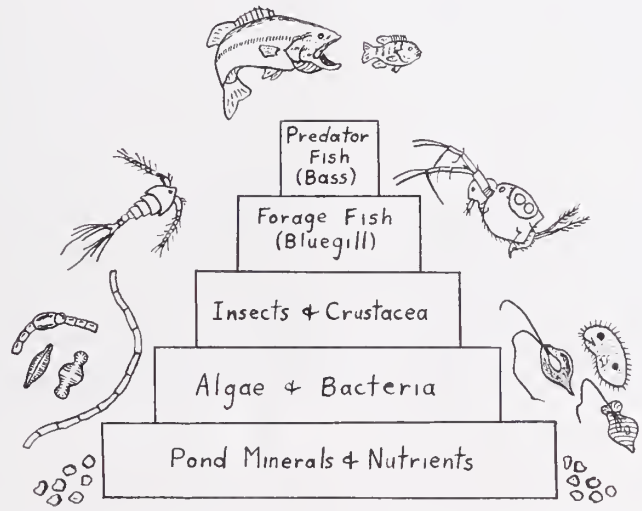
New Life For Old Ponds

By R. V. CORNING
District Fish Biologist

HAVE you often wondered what it would be like to catch a citation-sized fish? If so, ask a club pond member; he can probably tell you! Club ponds in Virginia often produce trophy-sized fish; yet perhaps because such an event is so common, these fish are seldom entered in the Commission's citation contest. Last year at least two unentered but verified citation-sized bass were taken from one pond alone—Goodins Pond, in New Kent County.

Often non-club anglers would like to know why these ponds produce such big fish, when they have to fish so long and hard to take a comparable fish from public waters. They wonder if magic is involved. Club members, on the other hand, would like to know how to maintain or possibly increase their quality fishing. This article attempts to explain why the big fish are present, why a comparable-type fishing would be disadvantageous in public waters, deficiencies of club ponds, and how to manipulate and manage these ponds from year to year to make them more productive than they are.

Eastern Virginia, while blessed with a few natural lakes and ponds, has numerous man-made lakes dotting the countryside. A large number of these ponds were constructed prior to the Civil War, and were built to supply water power for grist mills or as a source of winter ice for ice houses. With the advent of electrical power, grist mills and the need for block ice declined. As electricity and other modern conveniences shortened the work days and weeks, freshwater sport fishing became more popular. It was soon noted that while these ponds had not been constructed as fishing ponds, many did provide quality fishing for largemouth bass and bluegill. As the competition and desire for inland fishing developed, many clubs formed and a large number of these old and no longer used ponds were either leased or acquired for fishing purposes.



Pyramid of numbers. The total weight of each species in a pond is less than the total weight of the species below it upon which it feeds.

When one considers the characteristics of these tidewater ponds, one often wonders how they could produce any quality fishing at all. The majority of the ponds are situated in relatively flat lowlands having an annual rainfall of approximately 40 inches. Runoff is slow, and swampy conditions prevail in the stream bottomlands. Typically, pond waters are brown stained from the decomposition of leaves and other organic materials that acculumate in the swampy areas. Decomposition of the organic material not only causes water discoloration, but also releases various acids, such as humic, yellow organic, and sulphuric. Diffusion of the various acids causes the local waters to change from neutral or slightly alkaline to slightly or highly acid.

What does the acid water mean in relation to the catch of fish from club ponds? First of all, before any plants or organisms can be present they must have adequate food. The plants and some tiny organisms found in water feed directly upon mineral nutrients. In turn, some bacteria, small insects, and crustacea (water fleas, etc.) feed upon the small green plants and smaller organisms. This chain of predators, each becoming the prey for larger predators, may be repeated several times before there is a predator of sufficient size to become prey for a final "harvest" by a game fish.

Commission photo by Kesteloo

The total weight of each predator species in the chain is less than the total weight of the species below it upon which it feeds. In other words, the total weight of fish within a pond must be much less than the total weight of mineral nutrients available within or entering the pond, due to the large number of predator-prey cycles involved. A visual diagram, known as the pyramid of numbers, is often used to illustrate this relationship.

In getting back to the effect of acid water conditions, when waters are somewhat acid, part of the mineral nutrients present are in a form not usable by plants and other organisms. This means that the *potential* exists for greater fish crops, but the potential can be realized only if the waters become less acid. At least part of the total calcium, magnesium, nitrogen, phosphorus, potassium, and sulphur in typical club ponds of the Tidewater area is unavailable for fish production because of water acidity.

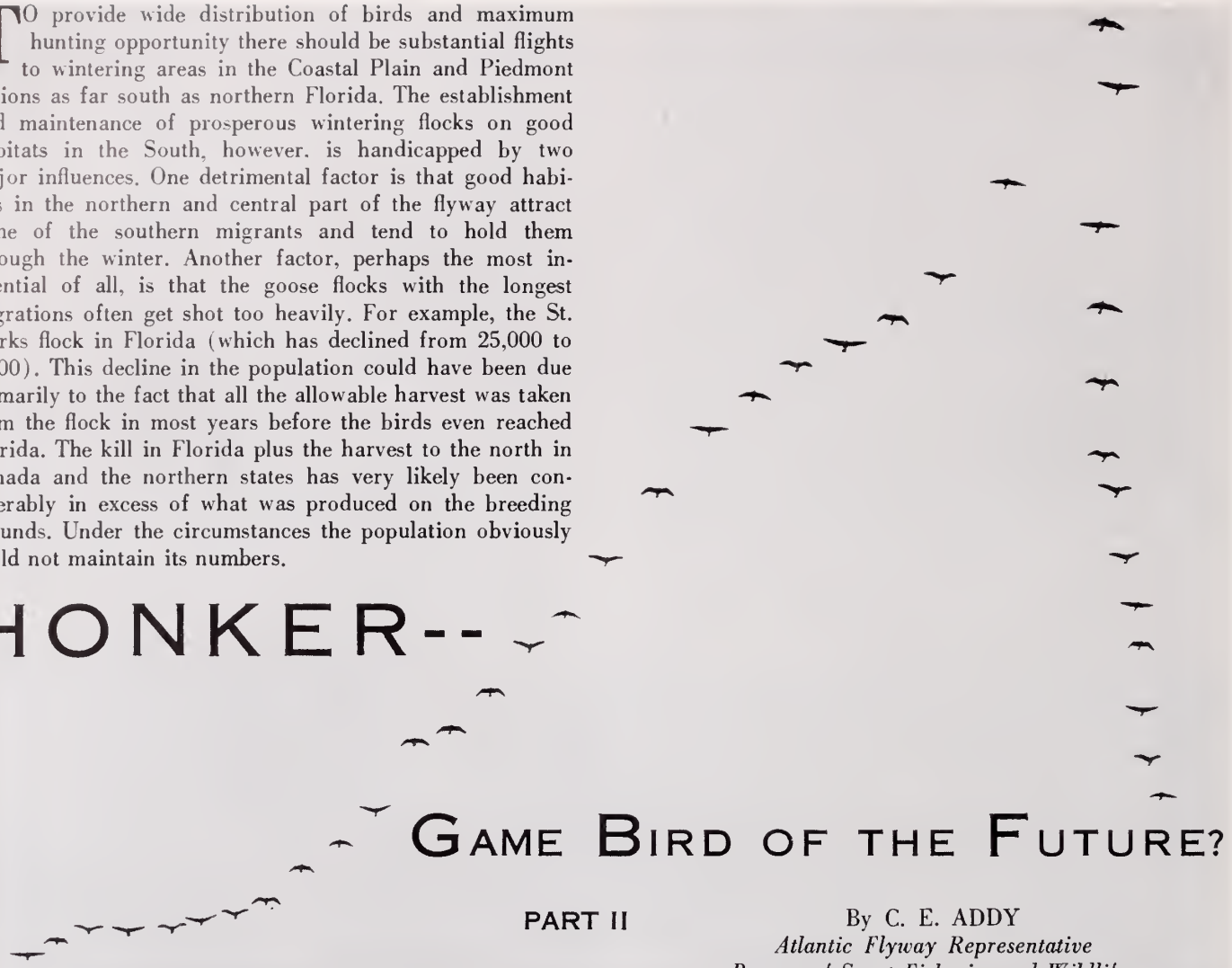
Over the centuries the sedimentary soils of eastern Virginia, composed mainly of clays, sands, sandy clays, and marls of the Cenozoic Era, have lost much of their original mineral enrichment to the Atlantic Ocean. Most farmers who raise crops on the higher lands surrounding typical club ponds are acutely aware of the mineral deficiencies in the soils even when the soils are not acid, and compensate by fertilizing their crops. Club pond waters also reflect this natural lack of mineral nutrients, since their mineral supplies are dependent upon the accumulation of minerals in the runoff water feeding the ponds. In addition, acid conditions further reduce the availability of needed mineals. However in most cases,

(Continued on page 20)

An accurate log of numbers, sizes and species caught is a basic management tool.

Commission photo by Kesteloo

TO provide wide distribution of birds and maximum hunting opportunity there should be substantial flights to wintering areas in the Coastal Plain and Piedmont regions as far south as northern Florida. The establishment and maintenance of prosperous wintering flocks on good habitats in the South, however, is handicapped by two major influences. One detrimental factor is that good habitats in the northern and central part of the flyway attract some of the southern migrants and tend to hold them through the winter. Another factor, perhaps the most influential of all, is that the goose flocks with the longest migrations often get shot too heavily. For example, the St. Marks flock in Florida (which has declined from 25,000 to 6,000). This decline in the population could have been due primarily to the fact that all the allowable harvest was taken from the flock in most years before the birds even reached Florida. The kill in Florida plus the harvest to the north in Canada and the northern states has very likely been considerably in excess of what was produced on the breeding grounds. Under the circumstances the population obviously could not maintain its numbers.



HONKER-- GAME BIRD OF THE FUTURE?

PART II

By C. E. ADDY
Atlantic Flyway Representative
Bureau of Sport Fisheries and Wildlife

In order to increase the overall flyway population of honkers, to develop new thriving flocks in the deep South, and have wider participation in the kill by hunters in the flyway, we have to acquire a lot of information on the migration characteristics and distribution of the birds, which groups of birds are related and which are not, when and where kill takes place, the size of the kill in different areas, and how much "natural" mortality occurs. Kill surveys, aerial counts, and increased banding on the Canadian breeding grounds and wintering areas in the flyway are being given a push to get information needed.

With an area as large as eastern Canada and the Atlantic Flyway it is reasonable that geese using some sections of this vast area may not fare as well as geese associated with other locations. As better data are obtained and we are able to define the different groups, we may find it desirable to manage some groups of geese differently from others. From the standpoint of good management, it might be necessary to have different regulations in different parts of the flyway.

Waterfowl hunters throughout the flyway are becoming more and more interested in goose hunting. Some state fish and game departments are making positive moves to satisfy their hunters' desires by acquiring the real estate needed to attract geese and by providing hunting opportunity. The hunters in the northern part of the flyway, particularly in Pennsylvania, New York State, and New England, are most anxious to get "their share" of the great number of birds that pass over their states in the fall, enroute to wintering areas in Delaware, Maryland, Virginia and the Carolinas.

"Short Stopping"

There is plenty of evidence that hunters in some states, such as those in mid-flyway, have had a much better deal on geese than hunters in the states to the north and south. This arrangement however, will not last indefinitely because it is certainly possible in the north to stop or slow the flights of birds bound for traditional wintering areas. With enough areas under the right kind of management the northern states and provinces could delay flights long enough to permit hunters to take most of the allowable harvest. In other words, it is quite feasible for the folks in the north to cut off the supply of birds to the rest of the flyway.

To the dyed-in-the-wool goose hunter farther south such a prospect would be a revolting turn of events. Nevertheless, it is clearly in the cards that this could happen. Therefore, it's very important that all states and provinces and the two federal agencies get together and agree on a workable management plan. Such a plan would attempt to increase the number of birds, encourage strong migrations and provide for a reasonable, equitable distribution of the kill between Canada and the United States and between the states of the flyway.

So much for what we would like to see happen. The big

Reprinted from August 1966 *Wildlife in North Carolina*, courtesy North Carolina Wildlife Resources Commission.

question is how to bring it to pass. When considering the problem it is good to keep in mind that compared to ducks and other natural resources, we are dealing with a relatively limited number of birds. Even if we had a fall flight in the future of a million honkers coming from the breeding grounds the most that we and the Canadians could take in an average year would be 250,000-300,000. If we wanted to continue building the population we would have to take less in order to allow more breeders to return to the breeding grounds. As more management areas are established during the next few years and as more and more hunters participate, the kill could rapidly exceed the annual production of birds. In this event, it would naturally follow that reductions in season and bag limit would be required to hold the over-all kill within safe limits.

Applying more restrictive regulations in the flyway in both Canada and the United States would probably do the job of preserving good population levels. But this approach alone would not begin to cure the distortions and inequities present. Perhaps, it might be desirable to delay the opening of the season throughout the flyway until many of the birds had completed their migration. If this approach would work it would give hunters in all areas in the flyway an opportunity to harvest their share.

In all likelihood, however, these general approaches alone won't do the job required. It is quite possible that without more specific control of the kill and control of the kind of habitat management carried out, populations in the southern half of the flyway would "dry up" due to "short stopping" and over-harvest. It would seem that if we want to develop and maintain strong goose flights and make it possible for hunters throughout the flyway to hunt and harvest a share of the birds, the only sensible solution is to set state or regional kill quotas in addition to having delayed opening dates and other general regulations. In other words, if our aim is to have hunting of the honker throughout the Atlantic Flyway and not just a handful of concentration areas, there has to be some way to make sure that enough "surplus" birds are allowed to get to the hunters all the way down to the end of the line. Very likely some sort of compulsory tagging system could be devised whereby only so many permits would be issued per state. All geese killed would have to be tagged immediately in the field and the kill reported.

At first blush, the tagging idea is a bit repulsive. It smacks too much of further regimentation and artificiality. But, looking at it another way, the honker is a magnificent bird and should always be held in esteem as a prized trophy. From this standpoint, I should think that requiring a tag and a report really puts this grand bird in a special class by itself among waterfowl.

Let's Make Every Bird Count!

If there aren't going to be enough Canadas to supply the demand, the obvious conclusion is that we must husband the resource with care. This applies to the hunter as well as the wildlife manager.

Most Canadas, once they are on the wing in late summer, apparently experience relatively light losses from "natural" causes such as predation, disease and starvation. On the other hand, losses due to man (other than shooting) can sometimes be important in some localities.

Perhaps the two most serious man-caused losses are birds shot but not retrieved (crippling losses) and birds that die as a result of eating lead shot. Waste of Canadas from these two causes isn't as great as with some duck species. However, a bird lost from such causes is one less bird for the hunter. It behooves all of us when hunting to make "clean" kills, shoot only when the bird is well within killing range and force ourselves not to shoot in situations where the chances of finding or retrieving a downed bird are not good.

Millions of waterfowl have experienced lingering deaths because they picked up some lead pellets when feeding. Some species suffer greater losses than others from lead shot poisoning. Where the Canada goose falls in relation to other species in this regard is difficult to say. In any event, it is encouraging to note that the ammunition industry is aware of the problem and is working on the development of a non-toxic shot which would take the place of lead in all shot shells.

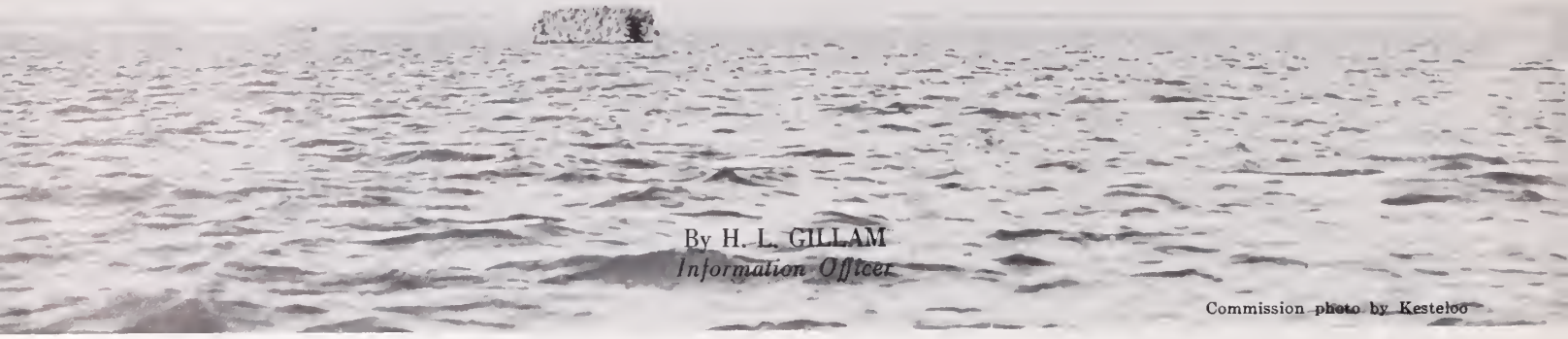
A Parting Word

In the management of the resource the wildlife manager has adopted many of the terms used in agriculture and other businesses. Such terms as "harvest," "production," "harvestable crop," "surplus" and "supply and demand" are in common usage. It's as though wildlife is a commodity to be produced and sold in the market place. Perhaps, to the manager, this is natural and necessary because somewhat the same mathematics and rules apply in most types of management programs. But when it comes to the hunter and hunting activity we should view the honker, not as a head of livestock, or a piece of merchandise, but as a free-ranging wild bird in his natural wild environment. Let's not concentrate the birds to such an extent that they lose their natural wariness, become paupers and can be bagged by the hunter as easily as any barnyard fowl. No, let's do all we can to maintain inherent wildness and make the bagging of a Canada goose possible only as a result of much effort and skill on the part of the hunter. Let's keep the magnificent honker as a trophy bird much sought after by those of us who love the sport.

The honker is a magnificent game bird that should be held in esteem as a prized trophy in a class by itself among waterfowl.

USFWS photo by F. Dufresne

HERE COME THE DUCKS



By H. L. GILLAM
Information Officer

Commission photo by Kesteloo

WATERFOWL gunners in Virginia and across the nation, for the first time in several years, have the prospect of more and better shooting this fall. A five-day longer duck season, one-half hour longer daily shooting hours, relaxed restrictions on the shooting of mallards, and more ducks and geese in the fall flight should add up to a considerably more successful season all around.

The drought cycle appears to have ended on the Canadian prairies, and the waterfowl have responded accordingly. Not only was there adequate water in the spring, but summer rains have replenished the supply, creating excellent conditions for rearing broods. If these conditions continue, waterfowl experts feel that waterfowl populations may again reach the high levels of the mid-1950's.

The U. S. Fish and Wildlife Service and Ducks Unlimited are both predicting a larger flight of ducks and geese this fall than hunters have seen in several years. The Fish and Wildlife Service reported a 37 percent increase in breeding ducks this spring and summer on U. S. nesting grounds.

N.A.S. photo by Cruickshank

Although canvasback numbers have made significant gains in the past couple of years, hunters are still limited to 2 daily or in possession.

Ducks Unlimited field personnel report the best production in the past decade in Canadian areas where their projects are located.

Mallards are still below average numbers, but they did show some increase over numbers of a year ago. Redheads and canvasbacks, on the protected list just a few years ago, have made a remarkable comeback. Wood ducks, which have received varying degrees of protection over the years, are in good shape at present.

The black duck, one of Virginia's most important species, is still at an all-time low level, and the most optimistic predictions are for a fall flight about equal to last year. In spite of better water conditions the blacks are still experiencing very poor nesting success. Pesticides residues in their diet, which could affect the hatchability of the eggs, have been suggested as a possible factor.

Due to weather conditions and other factors, Canada geese in the Atlantic Flyway were subjected to less than normal gunning pressure last fall. This sent a bumper crop of breeding birds north this spring, and is expected to result in a considerably larger than normal flight of honkers this fall.

Duck hunters were given a bonus of 5 additional open days this year due to the expected abundance of ducks. During the November 14-January 7 duck season waterfowlers will be allowed 3 ducks per day and 6 in possession after opening day. Hunters may have no more than 2 canvasbacks or wood ducks in their daily bag or in possession.

The bonus scaup shooting area established last year was continued with ringnecked ducks included in the bonus bird category. This year the hunter may bag scaup or ringnecks *in addition* to his regular bag limit of 3 ducks *while hunting in the designated portions of Chesapeake Bay and on the Eastern Shore.*

The November 5 through January 13 goose season should provide some topnotch action for waterfowl gunners in eastern Virginia. The prohibition against shooting geese over the waters and marshes of Back Bay and its tributaries prior to duck season was maintained, so goose hunters in that section will have to wait until November 14 to shoot in water areas. Goose hunting in fields in the Back Bay area will be allowed during this period. This special restriction

N.A.S. photo by Cruickshank

Wood ducks numbers are relatively high at the present time, but the 2 daily and in possession limit was maintained to prevent overshooting in concentration areas.

was established to prevent goose hunting activities from scaring the ducks out of Back Bay before the duck season opens.

Goose hunters are allowed 2 Canada geese a day and may have 4 in possession after opening day. Gunners may take 6 brant daily and are limited to 6 in possession.

In addition to the regular bag limit on ducks, hunters are allowed 5 mergansers daily, not to include more than 1 hooded merganser, and 10 in possession after opening day, not to include more than 2 hooded mergansers. Waterfowl hunters may also bag 7 scoters, eiders and old squaws counted together daily and have 14 in possession.

Waterfowl shooting this year will begin one-half hour before sunrise and end at sunset each day, including opening day. This will give gunners an extra half hour over last year's sunrise to sunset shooting.

Canada geese should be plentiful in the fall waterfowl flight. The weather and other factors combined to lighten gunning pressure on the honkers last fall.

Commission photo by Harrison

Bonus scaup and ringneck shooting is allowed this year only in the area shown in the accompanying map. This area includes the waters of the Chesapeake Bay bounded by the first upstream bridges of its tributaries on the west, by the Hampton Roads and Chesapeake Bay Bridge tunnels and U. S. 60 on the south and including the tidal waters of Accomack and Northampton Counties. The roads making up the western boundary are as follows: (1) Route #644 and #200 in Northumberland County; (2) Route #3 from Kilmarnock in Lancaster County to Middlesex County; (3) Route #3 in Middlesex and Mathews Counties; (4) Route #3 and 17 in Gloucester County to York County; (5) Route #17 in York County; and (6) Route #17 and Interstate 64 in Newport News and Hampton. Hunters are allowed to bag 2 scaup or ringnecks in addition to their daily bag of three ducks within this area.

1966-67 VIRGINIA MIGRATORY GAME BIRD SEASONS AND LIMITS

Species	Season Dates	Daily Bag Limit	Possession Limit	Shooting Hours
DUCKS	Nov. 14-Jan. 7	3†	6†	½ hour before sunrise until sunset
GEESE	Nov. 5-Jan. 13	2 Canada geese	4 Canada geese	½ hour before sunrise until sunset
COOT	Nov. 14-Jan. 7	8	16	½ hour before sunrise until sunset
BRANT	Nov. 5-Jan. 13	6	6	½ hour before sunrise until sunset
AMERICAN or REDBREASTED MERGANSERS	Nov. 14-Jan. 7	5 combined	10 combined	½ hour before sunrise until sunset
SCAUP AND RING-NECKS	Nov. 15-Jan. 7	2 in addition to regular bag*	4 in addition to regular bag*	½ hour before sunrise until sunset
SCOTERS, EIDERS and OLD SQUAWS	Nov. 14-Jan. 7	7	14	½ hour before sunrise until sunset
CLAPPER RAILS, SORA RAILS and GALLINULES	Sept. 9-Nov. 17	15 combined	30 combined	Sunrise until sunset
DOVES	Sept. 17-Nov. 5 Dec. 19-Jan. 7	12	24	Noon until sunset
WOODCOCK	Nov. 21-Jan. 9	5	10	Sunrise until sunset
JACKSNIPE	Nov. 21-Jan. 9	8	16	Sunrise until sunset

* In special area only
† Not to include more than 2 wood ducks or 2 canvasbacks

Commission photo by Kesteloo

HAWFIELD

THROUGH a cooperative agreement with the owner, Guy H. Lewis, Jr., the Commission of Game and Inland Fisheries has assumed management responsibilities and operational control of certain outdoor recreational activities including hunting, fishing and field trial events on the 2700-acre Hawfield estate north of Unionville in Orange County.

Three warm-water fishing ponds on the property, totaling 20 acres, have been open to public fishing since June 15. A hundred and eighty acres of harvested corn fields are providing Wednesday and Saturday afternoon dove shooting, and a number of important field trial events are scheduled for Hawfield's famous courses during the current season which extends through April 16.

The present arrangement for its management and use is the latest in a long series of changes that have come to Hawfield. At one time the Commission of Game and Inland Fisheries owned the property outright, and utilized it to study and demonstrate game management techniques on agricultural type lands.

Back about 1840, Captain William Crenshaw began to buy farms adjoining his own as they became available, and by 1877 he owned some 3,300 acres. By 1890 Hawfield was a show place, the acme of productive farming in that day, due in part, no doubt, to an extensive use of chemical fertilizer, which itself was still somewhat of an innovation in that area at the time.

After Captain Crenshaw's death in 1897 the farm began to slip backward, and by 1920 the Crenshaw descendants had lost interest in farming and had leased most of Hawfield to sharecroppers. From 1920 to 1945 little attention was paid to the land, and when fertility played out even the sharecroppers abandoned their fields and the place reverted to broomsedge, scrub pines and cedars, and gullies. A once fertile and productive farm lay in utter ruin.

By 1945 about 530 acres of the original Hawfield had been disposed of. The remaining 2700 acres were sold to a new owner who intended to rebuild Hawfield as a stock farm; but before he had made much headway in his reclamation project he sold the farm to the Commission of Game and Inland Fisheries in 1949, and Hawfield became a wildlife demonstration and experimental area.

During the 1950's old fields were cleared, the soil was fertilized, erosion was checked, pastures were reestablished, grain crops were grown, and permanent wildlife food and cover patches were established. Hundreds of thousands of experimental strains of shrub lespedeza plants were set out. And once again Hawfield became a show place—this time a demonstration of what could be done in reclaiming misused and worn-out farmland in the northern Virginia Piedmont area, and of how farm game management could be made compatible with grain and beef cattle production in that section of the state. When Hawfield had served its purpose as a wildlife study and demonstration area, it was sold to its present owner—a man who proved capable of running it as a productive enterprise and at the same time building its reputation as the farm where the bobwhite quail is king. Traditional home of the Virginia Amateur Field Trial Association, Hawfield became the site of several National Championship trials, and gained recognition as one of the truly great pointing dog field trial grounds.

Now a new chapter in the Hawfield story opens. Under the federal government's Cropland Adjustment Program some of its grain fields will be retired from commercial production for at least 10 years, additional wildlife management and soil conservation practices have been initiated, and the outdoor recreation potential of the entire farm has been opened to the public under Game Commission supervision.

There is more about Hawfield as it is today on pages 14 and 15.

Commission photo by Kesteloo

VIRGINIA WILDLIFE ☆ ☆ ☆ ☆

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

HUNT ACCIDENTS STATIC: FATALITIES DOWN. There were 57 hunting accidents reported during the 1965-66 fiscal year, exactly the same number reported a year earlier. There were fewer fatalities during the period just ended, however, with 9 reported as compared to 13 the previous year.

Shotguns as usual were responsible for the majority of accidents, accounting for 68 percent of the total. Seven mishaps involved high-powered rifles, nine involved small bore rifles, and two resulted from careless use of handguns. Small game mishaps outnumbered big game accidents by a considerable margin. The majority of the accidents occurred at less than 50 yards and in relatively light to open cover.

Over half of the persons responsible for these tragedies were less than 20 years of age and over one-fourth of those injured or killed were in the same age group. Only two of the shooters had completed the Hunter Safety course sponsored by the Game Commission and the National Rifle Association. In both of these cases, the shooter stumbled and fell, causing the accidental discharge.

Careless gun handling resulting in an accidental discharge was a factor in nearly half of the mishaps. Ten of the victims were mistaken for game, four of these in dense cover and the rest in relatively open areas. A shotgun discharge at point-blank range was the most common fatal combination.

CUMBERLAND PONDS OPENED TO ANGLING. Arrowhead Lake, Bonbrook Lake and Oak Hill Lake, three six-acre impoundments on the Cumberland State Forest, were opened to public angling September 5. The lakes were completed in 1964 and stocked with largemouth bass, bluegills and channel catfish in the spring of 1965. A special 11-inch minimum size limit has been imposed on bass in the three lakes. Anglers are allowed to take 5 bass, 5 catfish and 25 bluegills daily. Fishing hours are 1 hour before sunrise until 1 hour after sunset.

The three lakes were constructed as part of an extensive Accelerated Public Works project on the forest. A launching ramp for small boats is located at each lake. Fish shelters were included in the construction of each pond to concentrate the fish for anglers. A valid fishing license is the only requirement for fishing in these new lakes. Bass are reported to average about 11 inches in length and catfish about 18 inches.

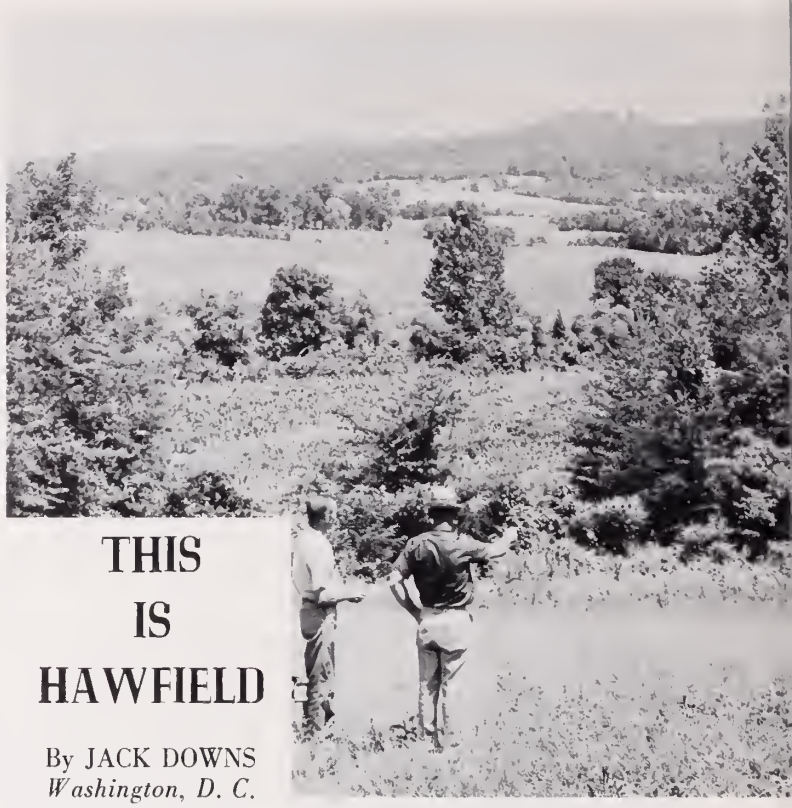
BACK BAY APPLICATION DEADLINE NEARS. Hunters desiring blind reservations on the Game Commission's Trojan and Pocahontas Waterfowl Management Areas at Back Bay must submit their applications before October 17 to be included in the initial drawing for choice dates. Up to 3 hunters can be accommodated in each blind. A $3 blind fee on Trojan gives hunters with their own boats and decoys use of the assigned blind for one day. On the Pocahontas area a $23 daily fee includes boat, guide and decoys.

These areas will be open for duck and goose hunting every day except Sundays from November 14 through January 7. Hunters without advance blind reservations will have to take their chances on openings for any given day. Choice of dates will be decided by a drawing October 17. Applications received after that date will be assigned to vacant blinds on a first-come first-served basis. Application forms are available from the Commission's office in Richmond.

MALLARDS, BLACKS, WOODIES AND CANS MOST IMPORTANT VIRGINIA DUCKS. Mallards, black ducks, wood ducks and canvasbacks made up the majority of Virginia's 1965 duck kill. Mallards made up 23.7% of the duck hunters' bag, 22.5% consisted of black ducks, wood ducks made up 10.5% and canvasbacks accounted for 10.1%. Other significant species included widgeons, green-winged teal, pintails, lesser scaup, buffleheads and goldeneyes. This information was obtained from duck wings collected from Virginia hunters during 1965-66 season.

THIS IS HAWFIELD

By JACK DOWNS
Washington, D. C.



Commission photos by Kesteloo

THIS is Hawfield—a field trial, and recreational mecca, jointly managed and controlled by owner, Guy H. Lewis, Jr., of McLean, Virginia, and the Virginia Game Commission: nearly three thousand acres of inviting hunting and fishing country, now open, by permit, to the public.

And like all who have had the pleasure of visiting Hawfield, I think you, too, would find the grandeur of its past, the promise of its future, intriguing.

Located in Orange County, heart of Piedmont Virginia, near the town of Orange, Hawfield played a most important role in the Civil War. Historic battlefields—Bull Run, Manassas, The Wilderness—are down the road apiece, and Hawfield was a Confederate staging area for some of the bloodiest battles between the States.

Let's get on to happier times, but we'd like to add that Montpelier, picturesque home of President James Madison, is but five miles west of Orange, and the famous Woodberry Forest School, founded in 1889, is nearby.

But enough of history and historical landmarks. *Virginia Wildlife* readers will be interested to know—not that Hawfield is a stranger to these pages—that Hawfield is being virtually landscaped in an effort to please the most critical field trial fan.

Do not misunderstand. Hawfield will always belong to nature. But in the fashioning of superb field trial courses, nature has been helped a bit—in spots, a lot.

The accompanying photos, taken by Commission photographer Leon G. Kesteloo, clearly portray some of the activities the public may enjoy, but we'd like to add that, as a recreational area, Hawfield is truly unique. Its suitability for field trials is but one of the many outdoor pursuits to be enjoyed. Hikers, bird watchers, fishermen (still, fly or bait casting), students of nature, and the fellow who just loves to drive slowly down a country road, enjoying the scenery, while looking for a place to hold a family picnic, will all be captivated by Hawfield. Would that we had the space, let alone the ability, to describe the many varieties of trees and other plant life so abundant.

This is truly big, beautiful country—undulating in contour, with timbered fence rows and hogbacks, tilled bottomlands and, at times, reaching towards the sky. And what fetching hunting milieu! ! Be he bird dog or hound, inviting coverts beckon on every side. Game abounds; quail, doves, wild turkey, deer and rabbits find Hawfield a haven.

The acreage is studded with springs and their waters flow freely into a network of tree-lined brooks—crossable at any point on horseback—and they never run dry. Lakes, four in all, are located strategically, and, as previously mentioned, the fishing is excellent from bank, pier or boat. Hawfield will take many a man back to his boyhood, for it's the kind of setting where you expect a Huckleberry Finn and a Tom Sawyer to came sauntering down a lane at any moment. Fortunate, indeed, is the boy or girl fated to grow up in such environment. This explains, in a measure, why so many born and raised in Orange County, who, for economic or other reasons departed this vicinity for a time, have returned to enjoy the rest of their lives here.

We had the pleasure of spending an afternoon with Squire Lewis at Hawfield a few weeks ago. How enthusiastically he waxed as he related the history of his Hawfield from its very beginning, his superlatives so fitting as he described the grandeur of the farm when it boasted its own railway, a magnificent, many-roomed mansion, formal gardens and a myriad of other appointments akin to Old World taste and gracious living. "You see," the Squire

(Left) Three warm-water fish ponds offer still, fly or bait casting, from shore or boat. (Right) Warden J. W. Crickenberger, Commission of Game and Inland Fisheries Executive Director Chester F. Phelps, and Game Division Chief R. H. Cross, Jr., examine Hawfield's abundant wildlife food and cover.

In the fashioning of Hawfield's superb field trial courses nature has been helped a bit, but the field trial is not the only outdoor pursuit that may now be enjoyed by the public on this magnificent wildlife management area.

explained. "Captain Crenshaw, original owner of Hawfield, also owned a fleet of sailing ships, traders, and he brought many rare treasures from all over the world to Hawfield."

How well it speaks for the innate charm of this setting when a man of Captain Crenshaw's stature, who visited most of the world, a man with means to live in any clime, chose Hawfield as the place he loved best. How pleasant it was, following our visit with the Squire, to sit atop one of the high board fences, enjoying the quiet of the summer evening —quiet unbroken except for the soothing sound of cooing doves—entertaining ourselves with thought pictures of what Hawfield must have been back in those halcyon days of Captain Crenshaw.

And we had cause to marvel, too, as we turned and studied the slopes of Little Mountain, resplendent in the setting sun, at what a Herculean task the Squire undertook when he decided to change the very face of this imposing land. But change it he did—changed jungle-like bottomlands and the courses of ancient creeks to suit his

purpose; erased thickets and all timber which hampered vision on courses, affording beautiful vistas in most every direction from points of vantage.

It took an army of workers equipped with tractors, brush hogs, drag lines and huge earth-moving equipment, plus a world of know-how, to accomplish the job. In describing some of the work, Guy said: "I didn't have time to oversee the job as much as I would have liked, being saddled with other business responsibilities, and the crew cut stands of timber and made other changes I had not authorized, but when you have a lot of equipment in operation these things happen."

Relative to field trials at Hawfield, the goal is uniformity of courses. Uniformity both in terrain over which to show a dog advantageously and the game population thereon. It has been a long, uphill fight—no pun intended—but from our observations during the tour of Hawfield a few weeks ago, Squire Lewis has the satisfaction of a mission accomplished.

Author Jack Downs and Game Commission Executive Director Phelps during a visit to Hawfield last summer.

BOWHUNTERS BEWARE

By H. L. GILLAM
Information Officer

MOST law enforcement and game management officials recognize archers as one of our highest caliber sportsmen's groups. Since these hunters have already restricted themselves to such primitive weapons, the additional restrictions placed on their sport by the Game Commission aren't hard to abide by. There are a few, on the other hand, who feel that their choice of weapons gives them a certain saintly status among hunters and entitles them to stretch the law a little when it's to their advantage.

A common violation by archers is what we might call "harmless spotlighting." Frequently a group of hunters will set up camp in an area, then take off in the car in the evening with a spotlight or just the car lights to see if they can see any deer. Often a group of bowhunters will play this little game on the way back to camp after shooting hours, stopping by some of their favorite fields or openings to see if any deer are using them. More often than not the group will have bows in the car at the time. This is a clear-cut violation of the spotlighting law, which prohibits shining a light on deer with any type of weapon in the car or on the hunter's person. The law requires no proof of intent to kill the animal. A conviction means confiscation of car and all equipment.

Legal shooting hours are probably the hardest regulation for the archer to abide by. Since the archer usually depends on the deer coming to him his best chances occur when the deer are most active, this period usually falling just before sunrise and just after sunset. Legal shooting hours begin one-half hour before sunrise and end one-half hour after sunset. This, for example, is from 6:47 a.m. to 7:30 p.m. daylight saving time (Richmond Area) on October 15, the opening day of bow season. It is possible to see a deer in the gray twilight period considerably before and considerably after these times. Since the archer usually goes to his stand in darkness and doesn't leave until the last minute, his chances of seeing a deer before or after hours are extremely high.

Pass up those tempting before and after hours shots. The chances of crippling game in poor light are much greater.

Shooting outside the legal hours, aside from being illegal, is a wasteful and dangerous practice. When the quarry is nothing but a dim shape, it is impossible to take the precise aim necessary for a killing shot. This results in a lot of the crippled game which has brought the archer the only major criticism of his sport. A high crippling rate could force curtailment or elimination of bowhunting, so it is important that bowhunters pass up questionable shots. Arrows seldom kill instantly, so it is very important in recovering game to know exactly where the arrow struck the animal and the direction it traveled after being hit. Poor visibility greatly reduces the chances of satisfying either of these requirements.

Deer seldom drop within sight of the bowhunter, and those hit in the last 30 minutes of legal shooting time, or after, are frequently lost because darkness hinders following the blood trail. I personally doubt that one in 10 deer trailed with flashlights is ever recovered, at least before daylight the next day. As the light fades, the chance of that dark form being a fellow hunter coming out of the woods increases. When the hunter thinks he can just barely tell it is a deer, it could just as easily be a man.

Although it is not a legal requirement, it is good practice to carry the bow unstrung from the car to the stand, and back, if returning after hours. If a warden finds you with an arrow on your string, you are hunting, in the eyes of the law. Carrying the bow unstrung removes the temptation to load up a little early, or to keep an arrow strung on the way back to the car, "just in case."

Commission photo by Kesteloo

Most bowhunters take their sport seriously and are sportsmen of the highest caliber. As their numbers increase it will take increased effort to maintain this good reputation.

The same word of caution applies to riding in or on vehicles. An archer riding on a fender or in the back of a pickup or jeep with an arrow on the string is guilty of "hunting from a vehicle" in the eyes of the law, regardless of his intent to shoot from such a perch. Unstringing bows when transporting them in vehicles is not only a good way to avoid violating the law, it is a good safety practice as well. A cut bowstring on a strung bow in the confines of a crowded car can produce some disastrous results as the recurves snap viciously around. When strung bows and broadheads come together in a confined space there is a good chance of strings getting cut. Closing the door on the limb of a strung bow could send slivers of wood and glass flying all over the car.

Many archers carry strung bows on the back seat of the car, where they can grab them at a moment's notice if a deer should be sighted. Not only is this poor sportsmanship, but it frequently leads to shooting from or across the road.

A question frequently asked is whether archers may carry handguns, especially while hunting dangerous game such as bear. The answer is an emphatic No! The law strictly forbids carrying any type of gun afield while hunting with a bow. This applies in gun season as well.

Speaking of equipment, archers after deer and bear must use broad-head arrows at least 7/8 inches wide and bows capable of propelling such arrows at least 125 yards. Bows of lesser power and arrows with other types of points may be used for small game. Crossbows, poison arrows, syringe arrows and explosive arrowheads may not be used. Glass and aluminum arrow shafts as well as wooden ones are legal for all types of hunting.

Since many archers exchange their camouflage suits for red hunting vests and their bows for firearms when the gun seasons roll around, there is often some confusion over deer bag limits. During the archery season, archers may take deer of either sex in open counties according to the county bag limit. In one-deer counties this means one, and in two-deer counties the archer may bag two does or bucks. Thus, if an archer bags one deer during the archery season he can only use his number *two* tab in a *two-deer county*, whether hunting with bow or gun. If his bow kill was a doe, he is not entitled to a doe during the gun season and must shoot bucks only with either bow or gun. If an archer should be lucky enough to bag 2 deer during bow season, his deer hunting for the year is over.

Bowhunters are sometimes tempted to shoot at fish without stopping to consider whether they have the required fishing license first. Those who are properly licensed must watch season dates, as carp and gar may be taken with bow and arrow only from March 1 through October 31.

Commission photo by Kesteloo

Archers may hunt deer, bear and squirrels with the bow during the special archery season October 15 through November 15. The bow may be used in lieu of shotgun or rifle in all regular gun seasons, including those migratory game birds and waterfowl. National Forest lands and wildlife management areas are open for this type of hunting during the archery season.

Two special areas of interest to archers are Chincoteague National Wildlife Refuge and Hog Island State Waterfowl Refuge. Bowhunting, the only type of hunting allowed on Hog Island, is permitted during the special archery season. On Chincoteague Refuge archers are permitted to hunt Sika deer during a separate archery-only season October 12 through 15. One Sika deer of either sex is the daily and season bag limit on the area. Archers are also permitted to shoot feral goats which roam the island without limit. Hunting hours are 6 a.m. to 5:15 p.m. each day. Archers may also take part in a gun season October 19 through 22. A limited number of bowhunters are also permitted on Radford Arsenal property Saturdays and holidays during the regular archery season.

Archers may use the bow to shoot carp and gar in water not stocked with trout, but a fishing license is required for this activity. Hunters have run afoul of the law several times by taking shots at fish while hunting, never stopping to think that they didn't have a valid fishing license.

Bowhunting is one of the finest forms of recreation and is quite popular with wildlife resource managers, since archers have so much fun at so little expense to the wildlife resource. Bowhunters, in general, are a dedicated and conscientious group vitally interested in the preservation of their sport and all wildlife resources. But bowhunters are people, and the moral code of such a cross section varies widely. As their ranks increase it becomes more imperative that they keep the errant members of their group in line to maintain their favored position. Maintaining a good reputation, although difficult at times, can pay big dividends by opening many doors to increased enjoyment of the sport in years to come.

Commission photo by Kesteloo

Most game wardens have a good opinion of bowhunters. Cooperating with them can keep it that way.

Voyageurs of the Flyways

By KATHERINE W. MOSELEY
Arlington

WE see jet planes trail silvery plumes across the autumn sky over our home on a knoll above the Hazel River near Culpeper. Each plane is equipped with efficient devices for streaking through the air on a well-defined course with a certain destination indicated. Each plane is manned by pilots skilled as flight engineers and learned in the science of navigation. The earth has been circled again and again by winged man with few limits of the clouds left to conquer. Man's wisdom in the ways of the air seem unlimited until you notice that—

Well below the jet's silvery plumes are hurrying southbound birds equipped only with thumb-sized brains, an ancient instinctive wisdom, and proficiency in soaring, sailing, and navigating that has not been mastered in principle or practice by the most skillful of modern aviators. No sextant is theirs and no compass, just a few ounces of bones and feathers and hereditary wisdom. What an awesome thing it is to consider the immensity of the perilous round-trip journey of birds that fly by day along the ridges of hills and borders of rivers and night birds that fill the sky with their calls.

It is estimated that the majority of North American species and a like proportion of European birds take part in the miracle of migration. Purposefully they travel traditional routes at the right time and to the right place for winter survival. Then as the southern days lengthen they return at the right time and to the same place for mating and nesting.

A few birds like the grouse, quail, cardinals and Carolina wrens are nonmigratory as are most of the woodpecker family. The robins are an interesting variation. The robins that nest on our land may go on to the Gulf of Mexico, but since we see robins through the cold months their place may have been taken by robins from Maine who consider northern Virginia a tropical state. Bluebirds and many blue jays are partially migratory.

Migration is the greatest adventure in the life of a bird and the most dangerous. They exhibit unusual stamina to travel the distances they do. The hummingbird, smallest of all birds, crosses the Gulf of Mexico flying alone and over five hundred miles in a single night.

Some birds migrate by day but most prefer the protection of the blackness of night. Day migrants include ducks and geese (which also fly by night), hawks, swallows, red-winged blackbirds and grackles. The night migrants include the great family of warblers, thrushes, fly catchers, orioles, tanagers, shore birds and most of the sparrows. While usually the birds make some effort to keep together there may be strangers that drift in and out of the group. Flocking or social birds usually travel in closer groups with the older birds showing the way and to some extent protecting the younger.

Night migration probably carries the greatest toll in casualties from fog, wind-drift and man-made tall structures. Night migrants fly faster and for longer periods, but rest and feed for several days before taking flight again. Their migration is really a series of long night flights. The day migrants rest and feed as they make a slower more leisurely trip, with man and his guns, predatory birds and animals their worst enemies.

The length of the migration journey varies enormously. Perhaps the blue jays on our place wander ten miles away while the scarlet tanager flies from Canada to Peru. The Canadian bobolink travels to the grasslands of Argentina. The birds east of the Allegheny Mountains seem to move southwest in the fall, nearly parallel with the seacoast. Day migrants may be guided by land contours such as river valleys and ridges of hills, but diurnal migration follows the same day-bird courses. It would seem the age-old routes have been chosen by early bird ancestors and indelibly imprinted in the brain tissue of each following generation.

The mystery of the why and how of migration has held a fascination for man since earliest times. There was first the belief that birds did not migrate but simply went into hiding for the winter by burying themselves in river mud or mud banks or hiding in caves. After that was the serious

What an awesome thing is the annual round-trip journey of the evening grosbeak, between the cool, silent, boreal spruce and fir forests of Canada and the feeder in your own back yard! And other birds, even smaller ones, navigate greater distances with marvelous precision.

belief that larger flying birds transported the smaller ones on their backs. Once the fact of migration was established the question was why? A commonly accepted theory is that the glacial era forced the birds to leave the Northern Hemisphere and travel south to thus establish the pattern and form the habit of migration. However this explanation falls short in that it does not explain why migration occurs in parts of the world that were never touched by glaciation.

The present theory is that the birds respond to the lengthening nights of fall, and their endocrine glands have undergone changes after the nesting season is over. It is during this period that the birds grow restless and move south. Then when the days of spring begin to lengthen and the nights grow shorter there is heightened activity of their reproductive glands, and when the days get long enough the birds feel compelled to return from where they came, in order to nest.

The other mystery is how do the birds find their way? The night travelers cannot make use of visible landmarks. So it has been suggested that they navigate by the stars. Then what about the day travelers? Studies were made to prove that the day-flying birds oriented themselves by the sun. But—the sun does not stay in one place in the sky during the day and changes positions on different days. Even if the birds are wise enough to make the allowance necessary for this differentiation, there are still the night birds flying with no sun whatsoever. Some students of migration have theorized that the birds are sensitive to the earth's magnetic field. Others have thought they have a kinsthetic sense, by which they could form patterns of their route through pressures on the inner ear. After every new theory, new evidence is usually found to refute it. Migration has been and may always be the greatest wildlife mystery of the ages.

There is a heady excitement in awareness of the birds' preparation for the great autumn adventure. When the robins gather in larger, noisier numbers than usual, when the black birds fly in determined flocks about sundown over our land toward the southwest beginning in late August, we are suddenly startled to realize the season is changing despite the heat.

We note that the little blue-gray gnatcatcher has left his watching perch on the telephone wire, and we remember that we haven't seen the tanagers in a week or so. Their migration begins very early. The trees seem full of well-fed warblers and glossy sparrows. The bird bath stays busy with hot, thirsty visitors and the fading, seeding annual blossoms are hungrily ravaged. There is little bird song. Instead there seems to be an intense effort for the birds to attain physical fitness as they eat and preen their new fall plumage.

Flights of dark-winged birds begin to pass all day long over the ridges of the hill but are too distant for recognition. The night skies are filled with call notes. To all of these we whisper. "God speed." We know that somehow the birds who spend part of the year with us carry with them the remembrance of the woods in which they were fledged, and will attempt to return when the days grow long and the sun warms again the grassy knoll that overlooks the Hazel River in Virginia.

New Life For Old Ponds (Continued from page 7)

unlike croplands, club ponds receive no outside source of fertilization other than by incidental supplements from nearby fertilized fields.

How much does the lack of mineral nutrients affect the total weight of fish that can be present at any time? When six unfertilized ponds in eastern Virginia, varying from 10 to 77 surface acres, were drained by the Virginia Commission of Game and Inland Fisheries, the average weight per surface acre for all fish present was found to be 129 pounds, with the maximum 184 pounds. In comparison, well fertilized ponds in this region support 450 or more pounds of fish per surface acre.

If the production of fish is low in most old club ponds, why do they consistently produce citation-sized fish? As an analogy to this paradox, consider a pound of butter. When a pound of butter is bought at a store it is usually subdivided into four one-fourth pound sections. The four sections might be considered "quality." Prior to table use, the butter may be cut into 100 pats of butter. These pats would represent "quantity." Despite the great dissimilarity in the sizes of cubes (quality) and pats (quantity), the total weight of one pound for the butter was unaltered.

By the same token, if numerous citation-size bass are present in a certain club pond, then the number of smaller-sized bass *must* be reduced accordingly. The total weight of bass that can be present at any one time, like the butter, does not increase. Only the subdivisions, i.e., "quality" or "quantity," change as long as the mineral availability and relationship to other fish species have not changed.

Nearly all fishing clubs limit membership and guest privileges, and for this reason the total take-home catch of a typical club pond is small compared to that of public lakes. Only a small number of younger bass are required as replacements for older bass removed. The total population of small- and medium-sized bass can therefore be quite low, both in total weight and reduced numbers, allowing a relatively large population of big bass, without adversely affecting future fishing. In a public lake, having a much larger fishing pressure, this would be disastrous. It is obvious that many club ponds in the Tidewater yield numerous fishing trophies, but it is chemically and biologically impossible for them to provide large numbers of fish of all size classes.

Early management of club ponds consisted almost exclusively of introducing new species and annual stockings of fish. Providence Forge Fishing and Hunting Club Pond, constructed in 1758, will serve as a typical example of early management. In 1932, the earliest records available, 442 adult bass were stocked in the pond; this was followed by 430 adult bass in 1933. Apparently in 1934 part of the dam washed away, but reconstruction followed and the pond was restocked in 1935. Periodically until 1943, additional largemouth bass, bluegill, and fliers were added. Altogether, over 8000 bass, bluegill, and fliers were released during this period without any assessment of their actual need or contribution to the catch. Additional stockings from private sources undoubtedly occurred after 1943.

In the mid-fifties Robert Martin, now Fish Division Chief, decided it was time to assess the need and contribution of annual fish stockings to the annual catch in public and private waters. Studies carried out by Virginia biologists indicated that over a season's time, the total pounds of fish harvested remained about the same whether or not additional bass were or were not stocked. These findings have been corroborated in many other states. A form of put-and-take fishing resulted when large-sized fish were stocked. The number of fish harvested in the size range released over a summer of fishing was disproportionately large, but the increase in this one size range resulted in a decrease in the harvest of other sizes. Despite the increased catch in the size range planted, the total poundage of fish harvested over the summer still remained about the same. Additionally, by the time a bass planted at 9 to 12 inches in length was caught, its overall cost was found to be approximately $3.

From these and other studies, it was apparent little good was derived from annual fish releases and that costs were excessive.

It is paradoxical that fishing enthusiasts and club pond overseers overlook facts that farmers take for granted. Fishing enthusiasts often feel that fish production is like operating a sausage machine. If ground meat or little fishes are put in one end, big sausages or big fish should issue forth from the opposite end. They ignore nature. Farmers know that fertilizers will do far more good for pasturelands having grasses already established than will the scattering of new seed every year. They have learned that liming of acid soils invariably increases crop yields. They know they must cultivate before and after planting their crops in order to reduce competition from weeds, since competition reduces yields. They also know that if their grasslands are overcropped by excessive grazing or "harvest," both the total weight of pastured animals and the grasslands themselves will suffer.

How can modern techniques of pond management assist club pond owners and private individuals having similar old ponds? The new look in fisheries management is based upon the phenomena long taken into consideration by farmers and gardeners. All of the farming practices mentioned also apply to club pond management. Pond fertilization, liming, reduction of competitor species, and the prevention of overcropping or harvest are all useful tools. Perhaps the best tool of all is the collection, and studying of fishing success information.

Club ponds are merely an idealized form of fish farming. They also represent a substantial investment, collectively, by club members and accordingly warrant the sound application of sound farming practices. A modern farmer would not think of managing a farm without compiling records on how many animals were raised, their weights upon sale, the amount of food required in rearing the animals, the condition of the range from which they were removed, and the number of stock left for breeding purposes.

Overseers of club ponds, as well as private pond owners, would be wise to adopt a practice of keeping records. A simple day-by-day log can provide a wealth of information. With a properly constructed log it is easy to determine changes in catch success, in species caught, and variations in fish sizes from year to year. Unlike a person's memory, a log book does not forget the exact success of the previous year. Nor does it depend upon successful recall by one or two individuals.

Changes in fish populations can be detected from log records long before the changes are evident to the fisherman, and when a remedy is much more easily applied. Too, management techniques can be evaluated to see if the desired results are being obtained. Should an outside expert ever be required to diagnose a pond's "illness," his job would be

easier, speedier, and more effective if a log book were available.

How should a log book be set up in order to provide the necessary information? The four most important items are: (1) the date, (2) the number of individual trips made to the pond, (3) the total poundage of fish, *by species*, that is removed, and (4) the size ranges of the species removed. Because bass are an important pond predator, the most desirable species, and the major means for keeping a pond in "balance," a column dividing bass above 14 inches from those below 14 inches is very useful. Another column, for indicating number of fish caught but returned to the pond, can prove valuable.

Although the weighing of fish before leaving the pond takes a little extra time, it is time well spent. The total weights for each species removed assist in accurately measuring over or under fishing for various species, rates of recruitment of young fishes, and the seasonal and annual changes in pond production. Weighing can be speeded through separation of the fishes by species, followed by the weighing of each species as a group. A bucket of known weight can be used to hold the groups of fish.

Fish lengths need only reflect the average size of fish being caught, in the case of panfishes. A few can be measured to the nearest inch to determine the average size, and then this figure recorded. More explicit information for bass, usually taken in small numbers anyway, is required.

Species identification presents some problems in log keeping, as several common names are frequently used for the same fish. Color pictures identifying the more common species, posted near the fish-weighing scales, reduce identification confusion. A helpful color chart, entitled "Virginia Freshwater Sport Fish," is available without charge from the Game Commission. The chart illustrates and identifies 12 of the most common gamefishes of Virginia.

Pond fertilization, unfortunately, is of limited value as a management tool for many club ponds. Since the majority of these are old mill ponds, a large supply of water was once considered desirable. Naturally, the more water flowing through a pond the faster any added fertilizer will be carried downstream and out of reach of pond inhabitants. The Commission, when constructing new fishing impoundments, has adopted a watershed to water surface ratio of 25:1 as the maximum allowable for fertilized ponds. A ratio as low as 12:1 is ideal if annual rainfall is 40 inches or greater. As a comparison, Essex Mill Pond, in Essex County, a 1965 citation contributor of a 9 lb. 10 oz. largemouth bass, has a watershed ratio exceeding 134:1. The Providence Forge Fishing and Hunting Club Pond has a ratio above 126:1, while Healys Pond, in Middlesex County, has a ratio of 47:1. Fertilization of these ponds, with their large watershed to water surface ratios, would be of marginal value except in extremely dry years. Many farm ponds, unlike club ponds, do have favorable ratios.

Clubs having ponds with low watershed to water surface ratios, or clubs wishing to fertilize during dry years, could significantly increase the total pounds of fish available to the fishermen via fertilization. Commercially prepared pond fertilizers are readily available. These preparations are more concentrated than normal farm fertilizers, and for this reason are available in 40 rather than 100 pound bags. The recommended fertilizer preparation has a nitrogen, phosphoric acid, potassium ratio of 20-20-5.

Current pond fertilizer prices run approximately

To apply fertilizer, place opened bag in shallow water. Wave action will do the rest.

Commission photo by Kesteloo

$120 per ton, undelivered, with a ton sufficient for one application to a 50 surface acre pond. The recommended application rate is one sack, or 40 pounds, per water surface acre. An initial application of fertilizer should be made with the first warming of waters in the spring, usually around mid-March. Two weeks later a second application should be made. Additional application needs can be determined by the extent of the "water bloom" two weeks or more after prior fertilization.

A tin can lid, attached to a stick, makes a satisfactory instrument for determining the extent of the water bloom. The stick is vertically submerged and if the lid can be distinguished at 16 to 18 inches in depth, an additional fertilizer application is needed. Normally, anywhere from five to 10 applications per season are required.

Fertilizer distribution is a relatively simple operation. Three bags, or enough for three surface acres, are deposited just offshore (in one to three feet of water) at equidistant intervals. Upon immersion, an X is cut from corner to corner on one side of each paper sack. Wave action disperses the material within a week without outside assistance. Decomposition of the paper sacks is rapid, eliminating the need for later removal.

Liming to decrease the acidity of pond waters and thereby increase available mineral nutrients, is a relatively new practice. It has been used only to a limited extent in Virginia. Bowling and Busbee reported on a liming experiment in Georgia using six ponds located in sandy and clay soils. Three of the ponds were treated with lime at the rate of one ton per acre, while three were left untouched. The amount of plant and animal life in the treated ponds increased and remained at a higher level throughout the 32-month test period. Untreated control ponds remained at a relatively constant level or decreased in plant and animal life over the same period. A drop in total water hardness did not take place until during the third year after treatment.

One of the few ponds in Virginia treated with lime, Lake Maury, Newport News, was limed in 1963 with one ton of lime per acre. Results are very similar to those re-

Commission photo by Kesteloo

The distance below the surface at which a bright object may be seen indicates whether more fertilizer is needed.

ported for Georgia. After treatment the pond waters changed from an acid to an alkaline condition. The waters have yet to revert to an acid state.

Over the years, a steady accumulation of silt and organic material has been deposited in old club ponds. Pond depths have decreased from this steady build-up until now in many instances sunlight penetrates to the mucky pond bottoms. Ideal conditions for rooted aquatic weeds have resulted and weed control is becoming an increasing problem. Water milfoil or *Myriophyllium*, once confined to tropical regions, has taken advantage of these conditions and has become established in many Tidewater ponds. Coontail (*Ceratophyllum*), *Elodea*, spatterdock (*Nuphar*), waterlily (*Nymphaea*), water crowfoot (*Ranunculus*), sago, and wavy leaf pondweeds (*Potamogeton*), are additional rooted invaders common to the Tidewater region.

During some years when bacterial populations thrive, bladderwort, a non-rooted aquatic, creates problems. Other non-rooted aquatics creating nuisance conditions at times are water net, duckweeds, and certain algaes.

Control methods vary greatly for the different plants as no "weed killer" seems to work for all species. Copper sulfate, 2,4-D ester, fuel oil, and Aquathol are the chemical controls commonly used in Virginia. The reliable use of 2,4-D ester is restricted to the months of May and June.

Reduction in competitor species was mentioned as a tool for managing club ponds. How is this done and why?

Different fish species not only compete for food, but for space, cover, egg-laying areas, and in other ways as well. Because of this competition, it stands to reason that a reduction in undesirable species would benefit the more desirable ones.

When bluegill become overly numerous due to an overharvest of bass, the bluegill not only compete with bass for space, but with themselves. For this reason it is essential that club members impose upon themselves a voluntary twelve to fourteen inch size limit on bass, so that an adequate number of large predators will always be in the pond to keep the prey species in check.

When the predator-prey relationship does get out of balance, bluegill numbers can oftentimes be reduced to the desired levels through the use of 5% rotenone powder. This powder is non-toxic to humans but kills fish by restricting blood flow in gill capillaries. A powder with 5% rotenone as the active ingredient is available at most farm supply dealers.

Two pounds of powder is required in club pond treatment procedures per 100 yards of shoreline. The powder is mixed with water to form a paste and is distributed parallel to shore in an even line approximately 15 to 30 feet offshore. Best results are obtained when the material is released about six inches under water, where the water depth is less than four feet. Application should be made on a windless day when wave action will not carry the chemical to deeper water.

Timing of the treatment is important since it is desirable to treat when bass are in deeper water. The best time to treat is in September and October between the hours of 9:00 a.m. and 1:00 p.m. Dead fish should be collected, weighed, and weekly treatments made until approximately 50 pounds of sunfish (bluegill, etc.) per surface acre have been removed.

Selective poisoning of fish to remove undesirable species only is currently being tested by the Commission. Tidewater ponds are very low in total hardness and total alkalinity. Under these conditions, copper sulfate applications at comparatively low rates tend to kill chubsuckers (mullet), carp, golden shiner (roach), shad (alewifes), bullhead, and several other undesirable species without significantly affecting the bass-bluegill populations.

Controlled pond experiments conducted at Front Royal Fish Hatchery in 1964 indicated significant kills of golden shiners, carp, and white and red suckers at a treatment level of 2 parts per million copper sulfate. No significant kill was noted for bass and bluegill. The same study indicated the poundage of bass and bluegill increased significantly in the treated ponds in comparison to the untreated control ponds.

Several years of field testing copper sulfate applications have already elapsed, and currently a means for determining proper treatment levels is being field tested. In the near future an additional tool for club, private, and public ponds may be added!

Weed control is essential in many old ponds if good fishing is to be maintained. Since no one control method works for all species, it is necessary to identify the nuisance plant correctly before undertaking to control it.

Commission photo by Kesteloo

WEED CONTROL BY CHEMICAL MEANS

Plant	Chemical Material	Amount to Use	Treatment Methods
Water milfoil Coontail Spatterdock Water lily Water crowfoot Bladderwort	2,4-D ester or 2,4-D pellets	Use 40-50 gals. of mixture (consisting of 5 qts. 40% 2, 4-D acid content—varies slightly with manufacturer—2½ lbs. detergent, remainder water)/acre of weeds, or 2,4-D pellets of 8-15 mesh or larger at 100 lbs./acre	Use back pack or garden orchard sprayers. For pellets use crank or power driven seeding equipment.
Duckweed	No. 2 fuel oil	1 to 2 gallons/acre	Same as above but repeat applications 2 or more times.
Sago pondweed Wavy leaf pondweed	Aquathol	Use as directed on label for Potamogeton species	Use back pack or garden orchard sprayers.
Pithophora	No acceptable low priced chemical on the commercial market.		
Algae (some)	Copper sulfate	2.7 lbs./acre foot	Burlap bag dragged behind boat.

Bird of the Month:

Double-crested Cormorant

By DR. J. J. MURRAY
Lexington

THERE are two cormorants on our Atlantic coast. The great cormorant, formerly called the European cormorant, is a rare bird in Virginia. It is more northerly and more oceanic, ranging on the northern stretches of both shores of the Atlantic. The double-crested cormorant ranges from Alberta and Saskatchewan to Maine and south to Massachusetts, with a southern variety or subspecies known as the Florida cormorant.

Neither subspecies of the double-crested form seems to want to nest in Virginia, although we have visitors at any season. It is abundant as a transient on our coast, uncommon in winter and still more uncommon in summer. In Rockbridge and neighboring counties in the Valley we have a few records. It is odd that one subspecies nests to the north of us and another to the south but that neither likes us well enough to nest here. This cormorant is often found on inland streams and lakes, while this is not true of the great cormorant.

The double-crested cormorant gets its name from its breeding time hair-do. Its scientific name is *Phalacrocorax auritus,* of which the first part means "bald raven," although the bird is neither bald nor a raven, while *auritus* means "long-eared," referring to the tufts of feathers behind the ears. These tufts are present normally only in the breeding season.

Somewhat ungainly in appearance, it nevertheless has handsome plumage. It is larger than any of the ducks, almost as large as a Canada goose. The body is greenish-black, the upper back and wings bronze and with a scaly appearance, the tail black. The bill, neck, and tail are long, the bill hooked at the tip. The throat pouch is orange-red.

In flight the bird is unmistakable. It flaps like a heron but the straight neck distinguishes it. When perched, it sits upright, often with the wings spread out to dry. In Florida singles or lines of flying cormorants are nearly always in sight. Dr. Forbush, in *Birds of Massachusetts,* points out that when flying in formation close to the water the wings of one bird seem to overlap the bird just ahead as they rise and fall, and goes on to suggest that this kind of undulating line of flight may be one source of the superstition about sea serpents.

In fishing these birds make deep dives, using their wings as well as feet, as if flying under water. The bird is usually completely silent but does occasionally utter a hoarse croak.

Feeding almost entirely on fish, the cormorant is very skillful in catching its prey. As is well known, fishermen in China use tame cormorants to help them in their work, with a ring around the bird's neck to keep it from swallowing the prey until the owner chooses to reward his assistant with a meal.

Edited by HARRY GILLAM

New Shooting Facility Opened

The Winchester-Williamsburg Public Shooting Center, which was officially opened August 27, should be welcome news to hunters and shooting enthusiastists in eastern Virginia. The new shooting center, which features two skeet fields and two trap fields, is strictly a public shooting center, open to anyone desiring to test or perfect his shooting skill. Shooters who choose to use their own guns and ammunition are charged only for clay birds. Ammunition will be sold for use on the ranges and guns can be rented at nominal cost by those who may not have the proper equipment. Free instruction by National Rifle Association certified shotgun instructors is available for the neophyte or the experienced shooter desiring to improve his form.

The range is open to the public from 2-10 p.m. on Tuesday through Friday, from 10 a.m. to 10 p.m. on Saturdays and from 2-10 p.m. on Sundays. Groups may reserve the ranges for special events by appointment outside these scheduled hours.

Although this is the first such facility in Virginia, it is the 26th in an international network of public skeet and trap shooting facilities franchised by Winchester-Western. Other Winchester Public Shooting Centers are now operating in 13 states as well as Freeport, Grand Bahama Island. Winchester officials are interested in discussing franchise possibilities with individuals and groups in other parts of Virginia.

Big Rack From Southwest

This handsome 15-point rack was taken by Lawrence Simmons of Wytheville last season.

National Trails System Proposed

An administration-backed bill to establish a national system of scenic hiking trails has been submitted to Congress by Secretary of the Interior Stewart L. Udall. Two of these, the Appalachian Trail and the Potomac Heritage Trail, would be in the immediate area. The 2,000-mile Appalachian Trail extending from Mount Katahdin, Maine, to Springer Mountain, Georgia, was given top priority. This scenic trail, which traverses Virginia via Shenandoah National Park and portions of the Jefferson and George Washington National Forests, has long been maintained by private groups such as the Potomac Appalachian Trail Club with government cooperation.

A new trail on the proposed list would be the Potomac Heritage Trail, which would extend 825 miles from the mouth of the Potomac River to its sources in Pennsylvania and West Virginia, and include the 170 mile Chesapeake and Ohio Canal tow path. In addition to some 8 other national trails, the bill would encourage the construction of shorter scenic hiking trails by federal, state and local government agencies.

Rainbows Do Well in Lakes

Photo by Remsen

H. L. Prillaman holds a 19½ inch Philpott rainbow taken on a minnow. Trout of about this size and larger have been popular fare at Philpott, Carvins Cove and Smith Mountain Reservoirs this summer following Game Commission fry stocking efforts. Anglers report best results at night with limit catches common.

Hunter Safety Instructors Trained

Seventeen adults, including two ladies, were graduated as National Rifle Association certified rifle marksmanship instructors and as NRA Hunter Safety instructors, following a two-day training session in Richmond sponsored by the Virginia Commission of Game and Inland Fisheries and the Virginia State Rifle and Revolver Association. This boosts the state roster of hunter safety instructors trained to date to 650. So far 26,189 students have received hunter safety training under the program. Hunter safety instructor training sessions like this one will be held anywhere in the state where a sufficient number of persons express interest in this type of training.

Edited by ANN PILCHER

Farm Ponds Pay Off

Mark, Timmy, Ricky, Terry, Chris, and Jacky Overstreet pose proudly with bass.

When fourteen-year-old Ricky Overstreet of Roanoke visited his grandfather's farm pond at Forest in Bedford County, he wound up with a 5 pound largemouth bass. It was the biggest fish ever caught in the pond and was taken on a plastic worm. His brother Terry, 13, had to help scoop the fish out of the water when the line broke at the last minute.

Leesburg *Times-Mirror* staff photo

Mike Ball, 16, snagged this 5 pound, 21 inch largemouth bass in a local pond near his home at Ashburn this summer.

Judge Orders Stiff Probation for Boy Hunter

In South Dakota a 14-year-old boy who shot and killed two antelope out of season will be busy for some time to come. He was placed on probation for two years by the judge, who said the boy must: report to the probation officer every 10 days; keep a daily diary of his activities; not ride his motor bicycle for six months; not hunt during the two-year probation period; bury the two antelope he shot; report to the game warden every week and follow a course of study which begins with the life history of the antelope.

Nelson County Rodeo

Lake Nelson, located near Arrington, Virginia, was the scene of the first annual Nelson County Youth Fishing Rodeo on Saturday, June 11. Over 200 young participants and about 100 parents made this venture a big success, according to Jim Moyer, Supervisor of Elementary Physical Education for Nelson County, who conducted the rodeo. Mr. Moyer was assisted by Mr. Austin Hill, Game Warden for Nelson County, and Mr. Ray Walker, Game Warden for Albemarle County. The rodeo was sponsored by the Ruritan Clubs of Gladstone, Massies Mill, Rockfish Valley, Lovingston, and the Schuyler Methodist Men's Club.

Wilton Dolan, Jr., son of Mr. and Mrs. Wilton Dolan of Norwood, with a 3.2 ounce bream, and Patricia Butler, daughter of Mr. and Mrs. James Butler of Faber, with a 3 ounce bream, captured the biggest fish title. Each received a trophy and rod and reel.

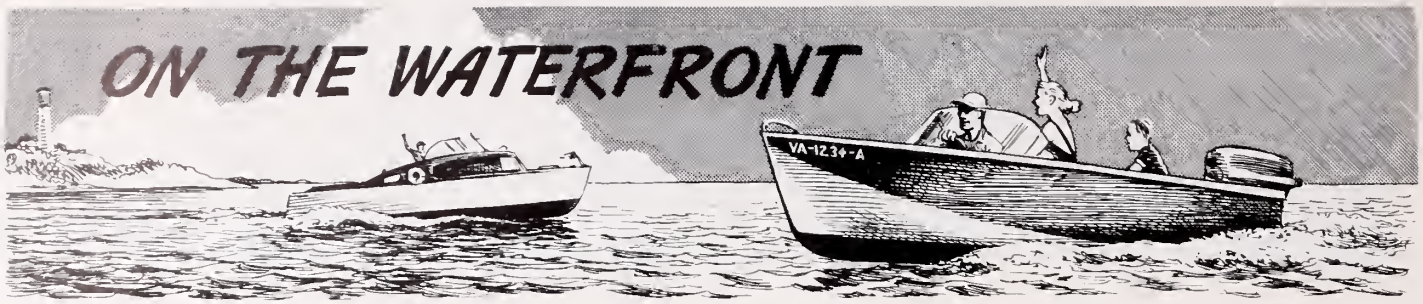
Receiving prizes for catching the largest number of fish in each age group were: *Age 6*—(1st) Donna Simpson; *Age 7*—(1st) Sherry Carter, Delores Simpson, John Gunter; (2nd) Mike Wood; (3rd) Robert Allen, Terry Campbell; *Age 8*—(1st) Karen Sanger, David Martin; (2nd) Mike Timberland, Danny Stevens; (3rd) Billy Smith, Bob Campbell; (4th) Ivan Hughes; (5th) Kirk Quillen; *Age 9*—(1st) Jackie Butler, Glenn Micklem; (2nd) Annie Ramsey, Jim Autry, Bill Harville; (3rd) John Baker; *Age 10*—(1st) Becky Harris, Gary Sheffield; (2nd) Debra Morris, Bobby Bryant; (3rd) Diane Duncan, Houston Allen, Buck Dawson, Lawrence Martin; *Age 11*—(1st) Beverly Martin, David Giles; (2nd) Sharon Curtley, Billy Parish, Bruce Campbell; (3rd) Patricia Butler, Ray Graves, David Litchford; (4th) Sara Powell; *Age 12*—(1st) Debbie Tomlin, Jim Snow; (2nd) Mitchell Huffman; (3rd) Alfred Cashwell; *Age 13*—(1st) Sharon Pucket, Charles Stevens; (2nd) Sharon Puckett, Roy Coleman; (3rd) Tom Carter, Kathren Allen, Thea Hughes, Mary Taylor; (4th) Mike Kidd, Gordon Purvis; *Age 14*—(1st) Vernon Baker and Wilton Dolan.

Windy weather made for poor fishing conditions, but there were 653 small-size fish caught by the contestants.

Fishing rodeo winners Wilton Dolan, Jr., and Patricia Butler, with Jim Moyer, supervisor.

Darryl Raines was a happy nine-year-old when he pulled this 2½ pound catfish from Orange County Lake last July. Darryl hooked the big cat with a night crawler on a regular line.

Courtesy of *The Orange-Review*



Edited by JIM KERRICK

We All Share Safety Responsibility

Speaking before the National Water Safety Congress in May of this year, Fred Lifton, Executive Director, Outboard Boating Club of America, stated that everyone, from designer to weekend yachtman, must share the responsibility for making pleasure boating a safe sport.

Lifton stated that boating accidents will dwindle "if the product is designed and built to rigid standards, the sport is sensibly regulated and policed, and the boatman learns and practices the right procedures."

He said that a good start has been made in each of these areas.

Lifton cited the OBC engineering program as an example of manufacturers' concern with building safer products. "Standards covering an ever wider array of marine products are being added to OBC's Engineering Manual each year, and existing standards are subject to continual revision to keep pace with technological advances," he pointed out.

"The US Coast Guard's most recent study of boating accidents is a fine example of the strides being made in enforcement. It places new emphasis on the causes of boating accidents. Once identified, these causes can be countered," Lifton asserted.

He said one of the first causes to be identified was overloading, and this was now being attacked on a broad front. "Manufacturers affiliated with OBC have been placing weight and horsepower capacity plates aboard new boats for more than a decade. Two years ago OBC enlisted the aid of marine dealers to get capacity tags in even more boats. The tags are required by law in four states," Lifton continued.

"Our own experience indicates that the boatman is more than willing to absorb all the education being thrown his way. More than 500,000 copies of one of OBC's safety publications are distributed annually, most of them in response to direct requests. This spring OBC introduced a rules-of-the-road decal, designed to give boatmen an easy guide to correct procedures. "Our first run of these tags was 180,000, and we have since been forced to order more. This sort of response can hardly be called apathetic," Lifton declared.

Charge Boat Battery

Your boat battery, used to start your outboard motor and power equipment aboard, should be checked periodically. Many boatmen forget about the battery until the day when they turn the key and nothing happens.

Think Twice About Highway Safety

If you are among the growing ranks of "Trailer Sailors," you have to think twice about safety. Both your car and boat trailer should meet minimum highway safety standards. Besides owning the right equipment, this includes periodic maintenance to insure proper performance.

Let us start our safety check with the towing vehicle and hitch. If you tow a load over 2000 pounds (including trailer, boat, motor and assorted gear), give some thought to heavy duty springs and shock absorbers. Never attempt to trailer a rig that weighs more than the towing vehicle. You could find yourself in a situation with the "tail wagging the dog."

Heavier rigs also require heavy-duty hitches. For loads under 2000 pounds a standard bumper hitch works well. For loads over 2000 pounds, select a frame hitch.

Before checking out the trailer, it is wise to mention the trailer "tongue," which is connected to the hitch. The tongue anchors the trailer to the car and should carry a portion of the weight. This is usually referred to as "tongue" weight and is figured 5 to 10 percent of the total load. The easiest way to determine if you have enough weight on the tongue is to measure the distance between the ground and the top of the hitch. It should be within 15 to 19 inches. Too much weight on the tongue will cause the car to squat and tend to pull the front wheels off the ground. Not enough weight on the tongue will cause the trailer to sway.

Adequate tire pressure is another important safety check. Generally trailer tire pressure is greater than that for the towing vehicle. A typical four-ply tire carrying a load of 700 pounds per tire should maintain a pressure of 50 pounds.

Underinflated tires cause trailer sway, which in turn causes poor highway handling and excessive wear on wheel bearings and tires. A dry wheel bearing may cause the wheel to lock and even rip the wheel from the trailer while you are traveling down the highway at 50 mph. Need we say more?

Don't forget the more obvious aspects of trailer safety. Before each trip be sure the hitch is connected properly and the safety chains are attached. Secure your tie-downs and be sure all equipment is secured. Check your brakes, lights and directional signals. Once on the highway, remember to think twice about safety—once for your car, once for your trailer.

Prevent Fouled Plugs

Under normal running conditions one set of spark plugs should last an entire season. If you have to replace plugs more often than necessary, excess oil in the fuel mixture could be the problem. Follow the manufacturer's recommendations to the letter when mixing your oil with fuel.

Time to Buy New Outboard

If you've been thinking about buying a new outboard motor or boat, now's the time.

Outboard motor manufacturers and boat companies annually introduce new models in early and mid-September. This means dealers are anxious to clean out the old and make room for the new.

Talk with your own dealer and watch the newspaper ads for special fall sales. Many dealers include free winter storage for both engine and boat, if you buy now.

'65-'66 BIG GAME

TROPHY CONTEST

REGIONAL AND STATEWIDE COMPETITION IN THE FOLLOWING CLASSES:

I Nine points or more	**II** Seven to eight points
III Six points or less	**IV** Bow and Arrow
	V Open Bear Division (Statewide only)

- There are no advance entry forms or entry fees. Heads or antlers must be carried or shipped to the proper regional contest where they will be officially measured and entered. Bear skulls only need to be entered in state contest.
- *Prizes* for regional winners
- *Trophies* for first place State winners in each Division
- plus *Honorable Mention Certificates*

RULES

1. Entries to be judged by a method similar to the Boone & Crockett System. No entry form or entry fee required.
2. Hunters must furnish proof of legal kill—big game check tag or affidavit from Game Commission.
3. Regional competition limited to animals killed in that region during the 1965-66 big game season.
4. All entries in state competion to be entered first in regional competition.

The east-west regional dividing line will follow the east-west deer season line in effect the year the entry was killed.

WESTERN REGIONAL CONTEST

October 27, 28, 29
William G. Myers Armory
Harrisonburg, Virginia

For entry details contact
Kermit Dovell
955 South High Street
Harrisonburg, Virginia
(Phone 434-3272)

Sponsored by the
Harrisonburg-Rockingham
County Izaak Walton League

STATE CONTEST

October 29
William G. Myers Armory
Harrisonsburg, Virginia

Virginia
Commission of Game and
Inland Fisheries

Only animals first entered in regional competition are eligible

EASTERN REGIONAL CONTEST

October 22
Municipal Armory
2900 Warwick Blvd.
Newport News, Virginia

For entry details contact
E. N. Vandenbree
41 Sinton Road
Newport News, Virginia
(Phone 596-4105)

Sponsored by the
Peninsula Sportsmen's Assn.

MIGRATION

A "Person of Learning and Piety" published in England in 1703 the theory that birds journeyed to the moon for the winter!

Aristotle thoug
plunged into s
hibernated d
months.

What makes the regal Canada goose rise and fly the prescribed course each fall? No one really knows.

The Arctic tern may hold the distance record for its flight between the polar regions.

22,000 MILES

Bird world's tiniest traveler? The ruby-throated hummingbird endures 500 miles of open water.

D. RAVER

Pacific
Central
Mississippi
Atlantic

MAIN WATERFOWL FLYWAYS

MORE OF NATURE'S TRAVELERS

Monarch Butterfly

Striped Bass

American Eel